



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,314	01/14/2004	Mohammed Mahbubur Rahman	WJT08-0053 (JSF001-0002)	3500
7590	03/03/2005		EXAMINER HAM, SEUNGSOOK	
William J Tucker 14431 Goliad Drive Box #8 Malakoff, TX 75148			ART UNIT 2817	PAPER NUMBER

DATE MAILED: 03/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary	Application No.	Applicant(s)	
	10/757,314	RAHMAN ET AL.	
	Examiner	Art Unit	
	Seungsook Ham	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/14/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Oath/Declaration

The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

The filing date of the provisional application date is incorrect (the filing date of the provisional application should be 2/5/03).

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, "a third resonator **located on a third layer of dielectric material** or low-temperature-co fired-ceramic coupled to said second resonator **and cross coupled to said first resonator**" as recited in claim 1, 13 and 25 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate

Art Unit: 2817

changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities: The status of the US patent application no. 09/457,943 should be updated.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1, 13 and 25, "a third resonator located on a third layer of dielectric material" appears to be misleading since first and third resonators are located on the same substrate/layer (i.e., "first layer of dielectric material", see fig. 4 and p. 12, lines 7-10).

In claims 4 and 16, "said DC biasing lines" lack antecedent basis.

In claims 5 and 17, "LTCC tape" is unclear (is this refers to "low-temperature-co fired-ceramic" recited in claims 1 and 13?).

In claims 6 and 18, "the inner ground plane" and "the stripline structure" lack antecedent basis.

In claims 7-10 and 19-22, "layer 2", "layer 6" and "layer 1" are confusing as to whether "2", "6" and "1" are used as reference characters (which should be enclosed within parentheses) or not. The examiner suggests use "second layer", "sixth layer" or "first layer" if the numerals are part of the claims.

In claims 8 and 20, "the remainder of the resonators are on the top layer and in microstripline form" appears to be misleading since resonators themselves are in stripline form only, but other elements in the filter/resonator circuits are in microstripline form. Moreover, "each combine resonator" is confusing as to which resonator referring to.

In claims 10 and 22, "the input output lines" and "the apertures" lack antecedent basis.

In claim 12 and 24, "the center frequency" and "the voltage" lack antecedent basis.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peters (US '259) in view of Liang et al. (US 6,492,883, insofar as understood).

Peters (figs. 4A-4C) discloses a multilayer filter comprising: a first resonator 208a on a first dielectric layer 202c; a second resonator 206 coupled to the first resonator on a second dielectric layer 202b; and a third resonator 208b on the first dielectric layer coupled to the second resonator and cross coupled to the first resonator; an input transmission line 207a connected to the first resonator; and an output transmission line 207b connected to the third resonator; and two ground planes 200, 203 are provided on upper and bottom planes. It should be noted that "a third resonator located on a third layer of dielectric material" as recited in claims 1, 13 and 25 has been assumed as the third resonator located at the first layer of dielectric material (see applicant's drawing, fig. 4).

Peters does not show a variable capacitor is coupled to at least one of the resonators. However, providing a variable capacitor in a resonator to tune a resonant frequency is well known in the art. Liang et al. (figs. 6 and 7) discloses a similar combline filter having variable capacitors coupled to resonators to tune each resonant frequency or the center frequency of the filter. Moreover, Liang et al. (figs. 8 and 9) discloses a conventional voltage tunable dielectric capacitor and also suggests using MEMS varactors as a variable capacitor (col. 10, lines 20-48).

It would have been obvious to one of ordinary skill in the art to provide a voltage tunable variable capacitors or MEMS varactors of Liang et al. in the device of Peters to tune the center frequency of the filter since providing variable capacitor to tune a

Art Unit: 2817

resonant frequency/filter frequency is well known in the art as shown by Liang et al. and also it requires only a routine skill in the art.

The subject matter of claims 8 and 20 cannot be given any patentable weight since it is unclear as what would be constitute as "the remainder of the resonators".

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Okada et al. (fig. 7) and Wong (figs. 1 and 2) disclose a multilayer filter having a plurality of stripline resonators disposed on different dielectric layers;

Toncich (US '251) discloses a tunable ferro-electric filter;

Son et al. (US '659) discloses a combline filter having variable capacitors; and


Ammar et al. discloses a LTCC filter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seungsook Ham whose telephone number is (571) 272-2405. The examiner can normally be reached on Monday-Thursday, 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571)-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2817

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Seungsook Ham
Primary Examiner
Art Unit 2817

sh